

**VERSION WITH MARKINGS TO SHOW CHANGES MADE:**

**IN THE SPECIFICATION:**

Amend paragraph [0013] as follows:

[0013] -- The invention is explained below on the basis of ~~an~~ exemplary ~~embodiment~~ embodiments with reference to the drawing, in which:

FIG. 1 shows a partial section through an electromotive drive according to the invention, as is suitable in particular for three-phase traction motors capable of being operated at high speeds;

FIG. 2 shows a partial section through a modified electromotive drive according to the invention;

FIG. 3 shows a schematic illustration of a coaxial arrangement of the parts of the electromagnetic slip coupling; and

FIG. 4 shows a schematic illustration of a variation of a slip coupling.--.

Amend paragraph [0015] as follows:

[0015] -- Between the freely rotatably mounted fan wheel 2 and the motor shaft 3 there is an electromagnetic speed limiting and governing device for the cooling air blower. The device designed as an electromagnetic slip coupling acts in such a way that, with increasing motor speed, in particular as from a specific speed range, the drive effect on the fan wheel via the slip coupling decreases. On the other hand, with a motor speed dropping below a specific speed range, the slip coupling causes the drive effect of the coupling on the fan wheel to increase

again. The parts 6, 10 of the electromagnetic slip coupling separated by a predeterminable air gap 11 are formed by magnets 6 or a cage 10. As shown by way of example in FIG. 4, the permanent magnets 6 and the cage 10 of the slip coupling are disposed in coaxial relationship to the motor shaft 3. --.

Before paragraph [0017], add the following paragraph:

-- FIG. 2 shows a partial section through a modified electromotive drive according to the invention having an electromagnetic slip coupling which is designed in such a manner that the center of the permanent magnets 6 and the center of the electrically conducting part 10 in the form of a cage are axially offset, producing an axial force component which acts on the fan wheel mounting and prevents a tumbling movement. In this case a fan wheel mounting can only be configured with one bearing, for example a double-row bearing or a mounting unit, between the motor casing 5 or the motor bearing plate and the fan wheel 2.--.

Add paragraph [0018] as follows:

[0018] -- FIG. 4 shows a modified slip coupling in which the cage 10 is formed by salient pole punchings for interaction with the permanent magnets 6 to effect the speed limiting and governing device in dependence on the motor speed.--.

**IN THE CLAIMS:**

**Amend** the following claims:

1. (Amended) An electromotive drive, with at least one fan wheel (2) which can be driven by an electric motor (1) and is supported freely rotatably by a motor casing (5) of the electric motor (1) via a bearing (4, 4'),
  - wherein an electromagnetic slip coupling dependent on the motor speed is arranged between ~~the~~ a motor shaft (3) and the freely rotatably mounted fan wheel,
  - wherein an electromagnetic speed limiting and governing device which limits the delivery of cooling air to the required quantity of cooling air is provided between the motor shaft (3) and the fan wheel (2),
  - wherein the fan wheel speed decreases it is possible as from a predeterminable motor speed for the fan wheel speed to be reduced in relation to the motor speed, when the motor speed exceeds a predetermined level in such a way so that the ~~driving along effect of the slip coupling becomes increasingly ineffective to engage the fan wheel, can be neutralized with increasing speed of the motor shaft until it is almost ineffective and increases again, when~~ to the full driving along effect as the motor speed drops below the predetermined level and the slip coupling increasingly re-engages the fan wheel,
  - ~~wherein the fan wheel (2) is mounted freely rotatably on the motor casing (5) by means of a mounting (4, 4') and~~
  - wherein the motor shaft (3) bears permanent magnets (6), ~~and the~~ a hub (7)

of the fan wheel (2) has an electrically conductive part or the fan wheel is provided with permanent magnets and the motor shaft is provided with an electrically conductive part.

4. (Amended) The electromotive drive as claimed in claim 1, characterized in that the electrically conducting part of the fan wheel or of the motor shaft forming the electromagnetic slip coupling with the permanent magnets (6) of the motor shaft (3) or of the fan wheel (2) comprises a sleeve (10) of electrically conductive material, ~~such as a copper sleeve.~~
6. (Amended) The electromotive drive as claimed in claim 1, characterized in that the fan wheel (2) has a hub (7) of nonmagnetic material, ~~such as aluminum,~~ or in that the fan wheel consists of plastic and a sleeve (10) of electrically conductive material is fitted into the fan wheel hub.
7. (Twice Amended) The electromotive drive as claimed in claim 1, characterized in that ~~the~~ parts of the electromagnetic slip coupling (6, 10) are arranged in coaxial or radial arrangement in relation to the motor shaft (3).

9. (Twice Amended) The electromotive drive as claimed in claim 1, characterized in that ~~the center of~~ the permanent magnets of one part of the slip coupling has a center which is axially offset in relation to ~~the~~ a center of the other part of the slip coupling, forming a cage.
13. (Twice Amended) The electromotive drive as claimed claim 1, characterized in that ~~the~~ parts of the electromagnetic slip coupling (6, 10) are dimensioned such that the maximum breakdown torque or the highest driving-along effect between the motor shaft (3) and the fan wheel (2) is reached at a predetermined motor speed, which is sufficient to overcome the drop in pressure of the aerodynamic circuit.
19. (Amended) The electromotive drive as claimed in claim 3, characterized in that ~~the~~ parts of the electromagnetic slip coupling (6, 10) are dimensioned such that the maximum breakdown torque or the highest driving-along effect between the motor shaft (3) and the fan wheel (2) is reached at a predetermined motor speed, which is sufficient to overcome the drop in pressure of the aerodynamic circuit.
20. (Amended) The electromotive drive as claimed in claim 4, characterized in that ~~the~~ parts of the electromagnetic slip coupling (6, 10) are dimensioned such that the maximum breakdown torque or the highest driving-along effect between the motor shaft (3) and the fan wheel (2) is reached at a

predetermined motor speed, which is sufficient to overcome the drop in pressure of the aerodynamic circuit.

24. (Amended) An electromotive drive, comprising:

an electric motor having a motor casing and a motor shaft received in the motor casing;

at least one fan wheel driven by the electric motor and having a hub,

a bearing unit positioned between the motor casing and the fan wheel for so supporting the fan wheel as to freely rotate with respect to the motor casing;

an electromagnetic speed limiting and governing device for controlling a supply of cooling air, said electromagnetic speed limiting and governing device including an electromagnetic slip coupling, which is disposed between the motor shaft and the fan wheel and so configured that at a predetermined motor speed an engagement action of the slip coupling with the fan wheel decreases to almost zero as the motor speed further increases, and increases to full engagement action as the motor speed drops again below the predetermined motor speed, and

wherein the slip coupling includes a configuration selected from the group consisting of a first configuration in which the motor shaft supports a permanent magnet arrangement and the hub of the fan wheel has an electrically conductive part, and a second configuration in which the fan wheel is provided with a permanent magnet arrangement and the motor shaft is provided with an electrically conductive part.

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Claims 43 and 44 have been added.

**IN THE DRAWING:**

FIGS. 2-4 have been added.

## REMARKS

The last Office Action of September 8, 2002 has been carefully considered. Reconsideration of the instant application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 1 to 42 are pending in the application. Claims 1, 4, 6, 7, 9, 13, 19, 20, 24 have been amended. Claims 43, 44 have been added. A total of 44 claims is now on file. The Commissioner is hereby authorized to charge the claim surcharge of \$36.00 to Deposit Account No. 06-0502. Enclosed is also a marked-up version of the changes made to the specification and claims by the current amendment. The enclosed page is captioned **"VERSION WITH MARKINGS TO SHOW CHANGES MADE"**.

It is noted that the drawings are objected to because of applicant's failure to show every feature set forth in the claims. Drawing proposals showing the required changes are submitted herewith together with a communication to the draftsman.

It is further noted that claims 1-23 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 5, 7-11, 13, 14, 17, 19, 22, 24, 27, 29, 30, 33-35, 37-39, 41 and 42 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 4,446,391 (hereinafter "Sekine et al.").



Claims 2, 3, 12, 21, 23, 25, 26 and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Sekine in view of U.S. Pat. No. 5,023,499 ("Kuwahara").

Claims 6, 16, 31 and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Sekine in view of U.S. Pat. No. 4,562,367 ("Kumatani").

#### **OBJECTION TO THE DRAWING**

Applicants submit herewith new Figs. 2 to 4 to show the subject matter of claims 9 and 37, 34 and 36. The specification has been amended to make it consistent with the amendments to the drawing. These changes are self-explanatory and do not contain any new matter.

Withdrawal of the objection to the drawing is thus respectfully requested.

#### **REJECTION UNDER 35 U.S.C. §112, SECOND PARAGRAPH**

Applicants have amended claims 1, 7, 9, 13, 19 and 20 to provide antecedent basis of all claim elements set forth. With respect to the amendments to claims 4 and 6, applicants have deleted the object-to language and have now recited the deleted subject matter in new dependent claims 43, 44.

Withdrawal of the rejection of the claims 1-23 under 35 U.S.C. §112, second paragraph is thus respectfully requested.

## **REJECTION UNDER 35 U.S.C. §§102(b) AND 103(a)**

The rejection under 35 U.S.C. §§102(b) and 103(a) is respectfully traversed.

Applicants have amended claims 1 and 24 to better encompass the full scope and breadth of the invention, notwithstanding applicants' belief that claims 1 and 24 would have been allowable as originally filed, if not for the lack of antecedent basis of some terms that has been addressed now with this amendment. Accordingly, applicants assert that claims 1 and 24 have not been narrowed to trigger prosecution history estoppel.

The present invention, as set forth in claims 1 and 24, is directed to the configuration of an electromotive drive, and in particular relates to the improvement in implementing a better motor cooling (compare paragraph [0004] of the instant specification). There are i.a. two structural features that are relevant here. Firstly, the fan wheel is so supported by the motor casing so as to be freely rotatable thereto. In other words, the fan wheel is not supported by the motor shaft (compare paragraph [0005], line 5-7 of the instant specification). As a result of this construction, the fan wheel rotates at sufficient speed, even when the rotation speed of the motor shaft is small. As a result, better running behavior and improved bearing lubrication of the fan wheel mounting are achieved. Secondly, the fan wheel speed is controlled in dependence on the motor speed, i.e. as the motor speed reaches and exceeds a predetermined level, the fan wheel speed decreases accordingly, as the slip coupling becomes less and less

effective. Thus, as described in paragraph [0005], lines 2 to 5, there is a sufficient quantity of cooling air at relatively low motor speeds, while the quantity of cooling air to be delivered at relatively high or high motor speeds no longer increases in proportion to the increasing motor speed. In this way, an optimum amount of cooling air is made available at all times.

The Sekine reference is directed to a rotating electric machinery and, in particular, involves a construction that has less noise at high revolving speed (col. 1, lines 58 to 61). Nothing in Sekine suggests the desire to improve motor cooling. As clearly shown in the drawings, the fan (15) is directly supported by the motor shaft (7). Column 2, lines 24, 25 are instructive here and read as follows: *"(15) designates a fan which is rotatably connected through the ball bearing (14) to the shaft;"*. In addition, Sekine describes in col. 2, lines 62 to 65, that the revolving speed of the fan is limited, i.e. the fan revolves up to a maximum revolving speed, even though the revolving speed of the motor may further increase. The revolving speed of the fan is limited to the predetermined level. In contrast thereto, and as described above, the fan wheel according to the present invention **decreases** in speed, as the motor speed exceeds a predetermined level.

For the reasons set forth above, it is applicants' contention that Sekine neither teaches nor suggests the features of the present invention, as recited in claims 1 and 24.

As for the rejection of the dependent claims, these claims depend on claims 1 and 24, respectively, share their presumably allowable features, and therefore it is respectfully submitted that these claims should also be allowed.

Withdrawal of the rejection of claims 1 to 44 under 35 U.S.C. §§102(b) and 103(a) and allowance thereof are thus respectfully requested.

### **CITED REFERENCES**

Applicant has also carefully scrutinized the further cited prior art and finds it without any relevance to the newly submitted claims. It is thus felt that no specific discussion thereof is necessary.

### **CONCLUSION**

Applicant believes that when the Examiner reconsiders the claims in the light of the above comments, he will agree that the invention is in no way properly met or anticipated or even suggested by any of the references however they are considered.

In view of the above presented remarks and amendments, it is respectfully submitted that all claims on file should be considered patentably differentiated over the art and should be allowed.

Reconsideration and allowance of the present application are respectfully requested.

Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims and/or drawing, then it is respectfully requested that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. If the Examiner feels that it might be helpful in advancing this case by calling the undersigned, applicant would greatly appreciate such a telephone interview.

Respectfully submitted,

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